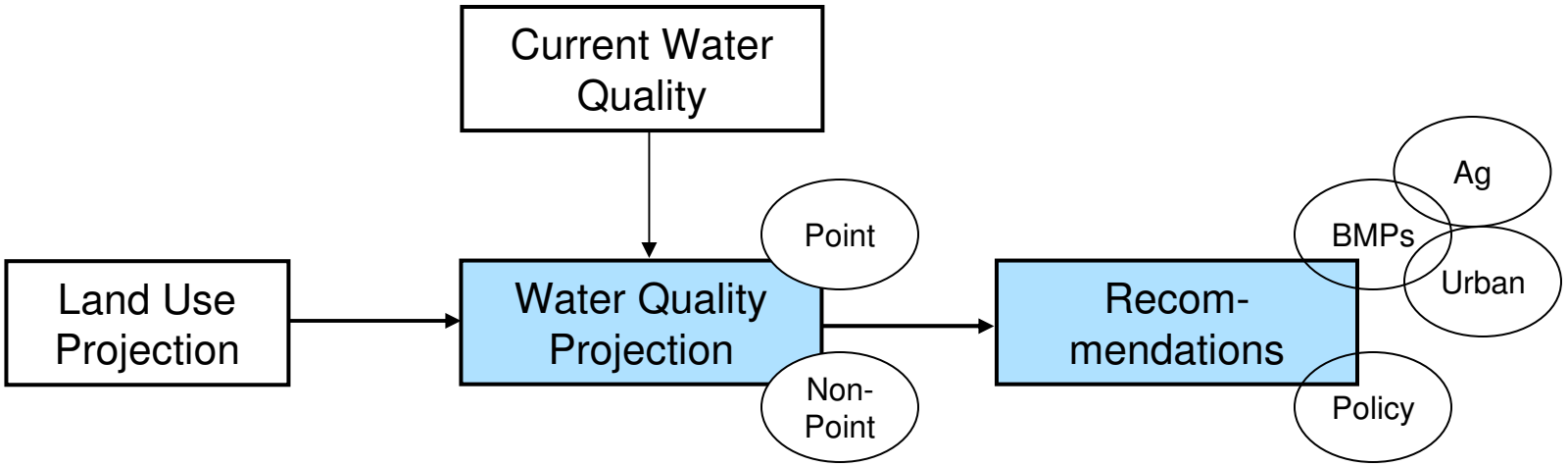
Chicago Metropolitan Agency for Planning

Pollutant Loading and Green Infrastructure in the Lawrence Creek Watershed
February 14, 2008

Process


Current Water Quality
Land Use Projection
Water Quality Projection
Point
Non-Point
Recom-mendations
Ag
BMPs
Urban
Policy

Understanding the project

- Two objectives:
  - Fix existing water quality problems
  - Prevent future problems
- Two main types of pollution:
  - Point source
  - Nonpoint source

Model

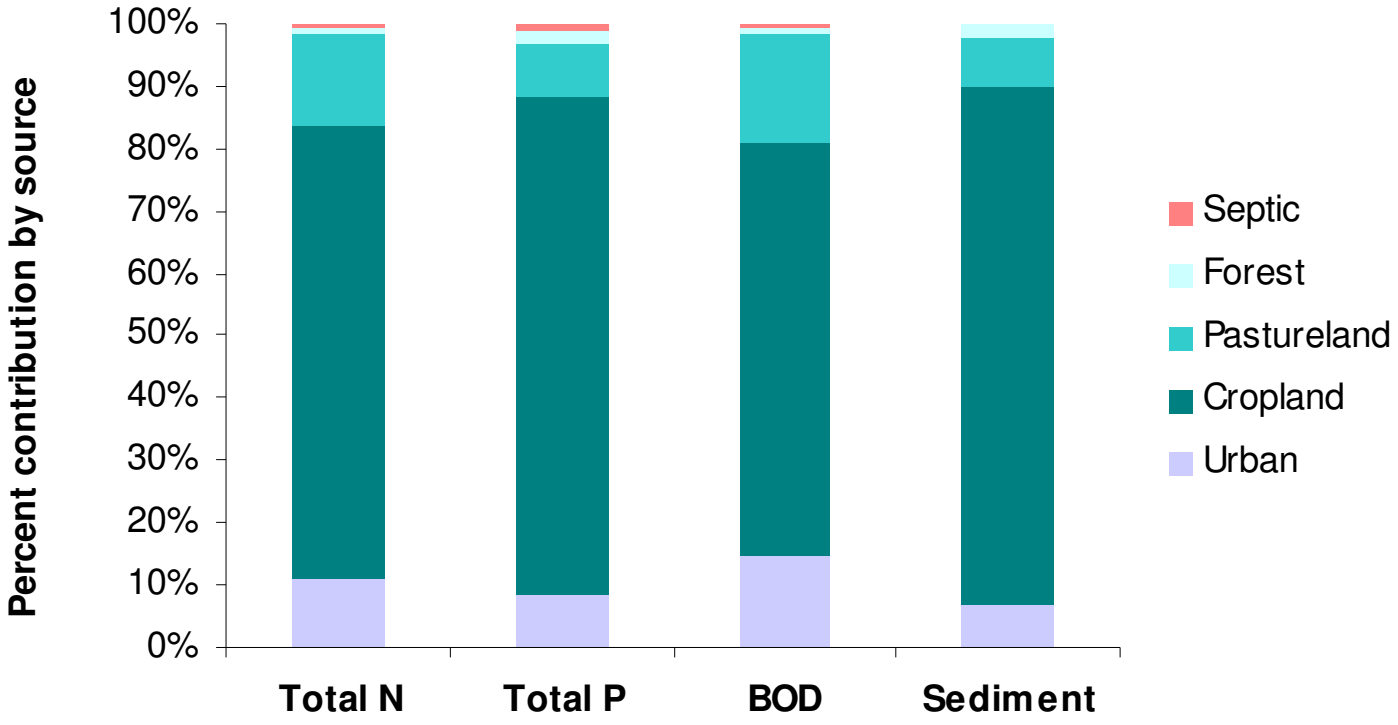
- STEPL
  - http://it.tetratech-ffx.com/stepl/models$docs.htm
- Estimates nonpoint loads and contribution by source
- Does *not* yield predictions of instream concentration or load duration
- Wastewater contribution calculated separately

Causes of impairment

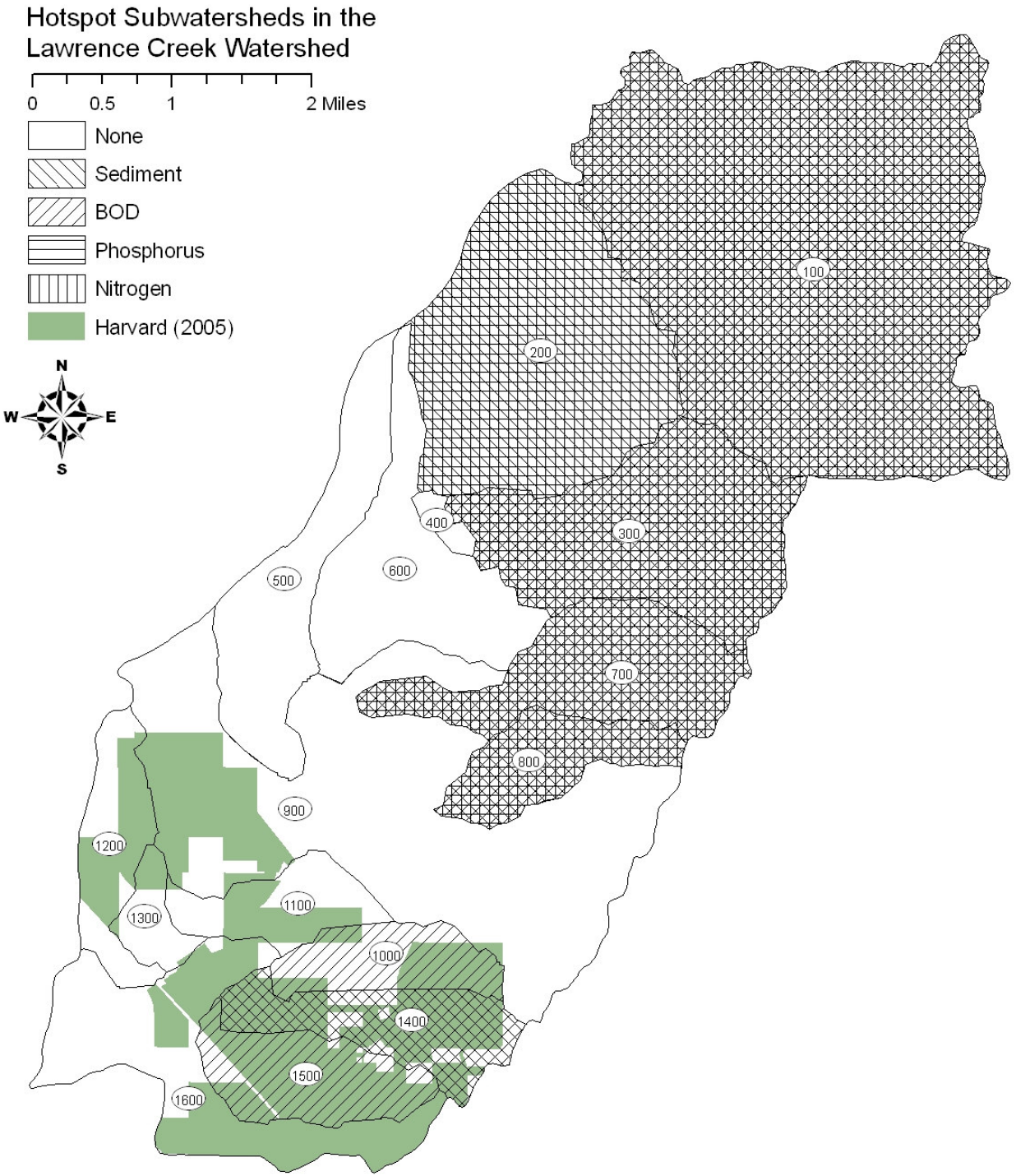
Unknown by IEPA, *but* …

- Alteration to streamside and littoral vegetative covers (habitat alteration) or loss of riparian area function
- Sediment
- Nutrients
- Crop-protection chemicals (i.e. pesticides)?
- Stream dewatering
- Road salts

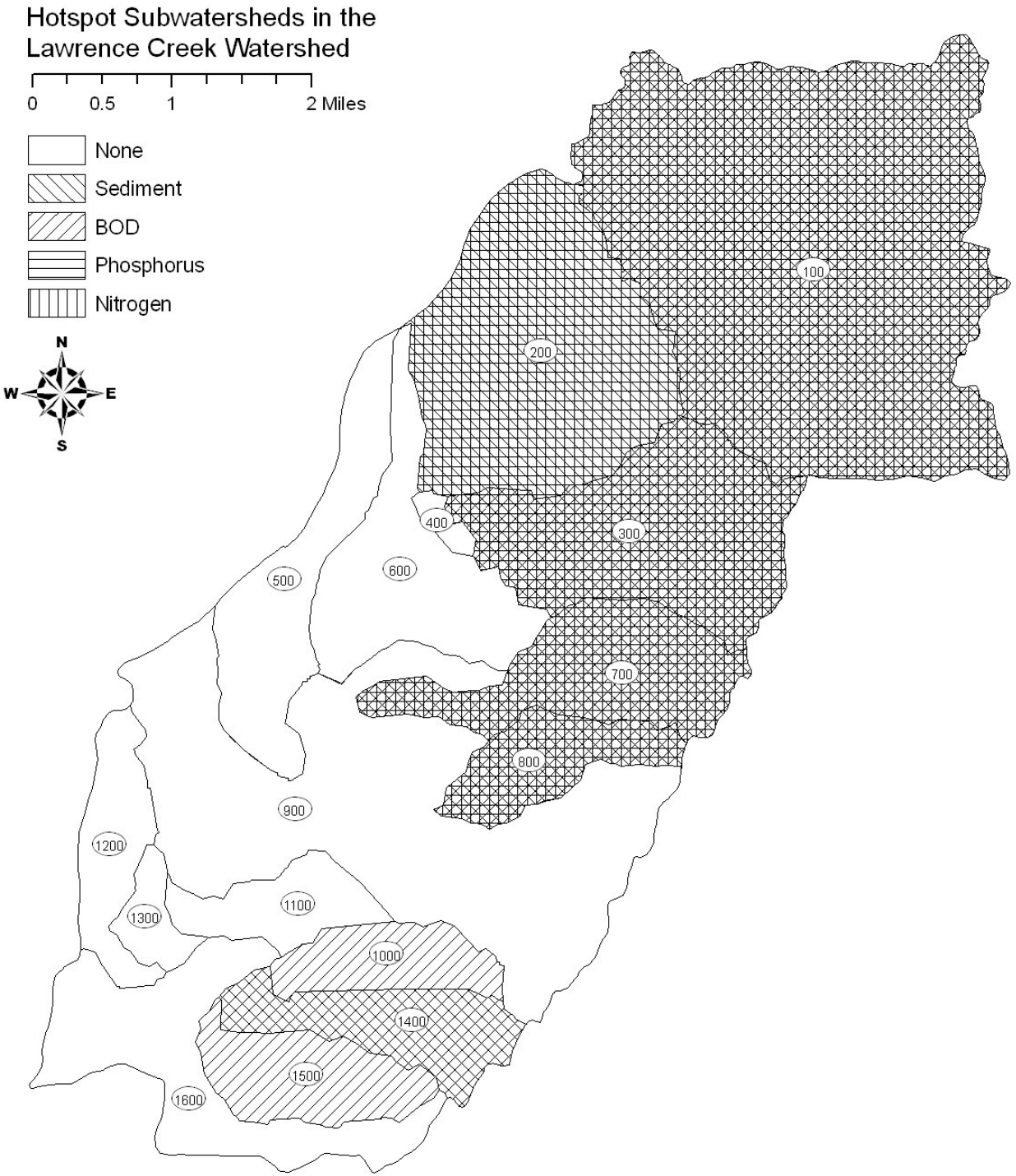
Sources


Percent contribution by source
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Total N
Total P
BOD
Sediment
Septic
Forest
Pastureland
Cropland
Urban

“Hotspot” subwatersheds for pollutants



“Hotspot” subwatersheds for pollutants



A rough estimate

- No load estimates for streambank or gully erosion
- Groundwater/subsurface flow contribution ignored
- Does not account for construction

Consistency

Model	Annual Average Discharge (ac-ft)	Drainage area ratio
STEPL	12,272	1.35
ISWS	10,932	

Natural Area Conservation

- Two forms:
  - Riparian area
    - The “skeleton,” the “last line of defense”
    - Habitat protection for both terrestrial and aquatic species
  - Remaining “green infrastructure”